Anglo-American Strategic Air Power Co-operation in the Cold War and beyond

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British and American airmen have been co-operating extensively in the field of strategic air power since before World War II when shared endeavours, such as the combined bomber offensive against Nazi Germany set a precedent for close partnership. After World War II, the Cold War framed air power relations between the two countries and the Royal Air Force (RAF) and United States Air Force (USAF) were the key players. The Cold War shaped the relationship until about 1990 but the two services continue to enjoy an exceptionally close affiliation today. Anglo-American air power co-operation serves as an excellent model of successful coalition relations, and reflects the evolution of current concepts such as expeditionary air power and effects-based operations.

The Anglo-American alliance is perhaps the ultimate example of a 'coalition of the willing', but why have British and American airmen had such an enduring propensity to work together? On one level their friendship has reflected the long-term political alliance between their two countries based on shared strategic interests. Within alliances British and American airmen have pooled their resources to oppose common enemies ever since they fought the Central Powers in World War I. The Axis Powers were their common foe during World War II and the Soviet Union filled that role during the Cold War. However, the Anglo-American air power relationship transcends opposition to shared enemies. In today's complex world foes are less clearly defined, yet the two air forces still integrate their operations remarkably

British and American planes fly in supplies to Berlin during the blockade

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closely. Several factors might help account for the ongoing rapport. Simple force of habit is one possible explanation. The services have co-ordinated closely for so long that they have become habituated to working together. Personal friendships may be another contributing factor. Generations of airmen have served together and formed close bonds during exercises and while stationed in each other's countries. Personnel exchange tours have long been a staple of the relationship between the two air forces. A common language has also facilitated friendly relations. Yet none of these explanations really accounts for the depth of the special relationship between British and American airmen. The RAF-USAF partnership has experienced vicissitudes over the years but, like a healthy marriage, has weathered the storms. As both nations seek coalition partners today and in the future their airmen can profit from a retrospective study of their affiliation.

This article will examine Anglo-American strategic airpower relations since World War II by considering the areas of planning and operations; organization and basing — particularly of US units in the UK; equipment — especially aircraft, missiles, and munitions; and finally joint training. However, the term 'strategic air power' requires clarification. During the Cold War the idea that "strategic meant nuclear" was prevalent,[1] but US-UK air power activities have shown the limitation of that notion. The US has indeed often stationed nuclear-capable bombers and missiles at British bases since the 1940s. In a remarkable display of trust, the US even equipped the RAF with bombers and, later, nuclear weapons whilst the UK built its own nuclear capabilities. Today's airmen understand that the term 'strategic' refers not to particular weapon systems, but to the level of effects those systems produce. This article discusses air and space power capable of

producing effects that "influence activities at the strategic level of war and focus on national and multinational military objectives."[2] For example, today's RAF and USAF doctrines recognize the 1948-1949 Berlin Airlift, a combined Anglo-American operation, as an example of how non-combat air operations can produce strategic effects.[3] Indeed, non-combat activities such as training and equipment have been central to US-UK airpower cooperation since World War I. As Sebastian Cox explains in his article in this journal,[4] America provided training bases for the Royal Flying Corps (RFC) (renamed the RAF in April 1917) in return for British equipment and assistance with squadron combat work-ups of US Army Air Service squadrons on the Western Front in 1917 and 1918. First World War cooperation set the precedent for Second World War cooperation, when, for four years, the Royal Air Force and the US Army Air Forces (USAAF) worked together in North Africa, Sicily, Italy and, finally, the invasion of Europe. The so called strategic air forces, Bomber Command and the Eighth Air Force, started working together in 1942 on what came to be called the Combined Bomber Offensive.

Anglo-American airpower activities waned in the immediate aftermath of the war. By the end of 1945 there were 740 military airfields and dispersed operating sites in the United Kingdom, of which 159 were at some time occupied by USAAF units. By the end of 1946 the last USAAF unit departed for the United States, however the Visiting Forces Act of 1942 remained extant. The first significant instance of postwar US-UK airpower cooperation occurred in January 1946 when General Carl Spaatz, Commanding General of the Army Air Force, and the new Chief of the Air Staff (CAS), Marshal of the Royal Air Force (MRAF) the Lord Tedder, were visiting USAF bases in Britain that were about to close. Already worried about the looming Soviet threat, Tedder agreed to Spatz's request to have five RAF bases — Marham, Lakenheath, Scampton, Bassingbourne and Mildenhall — prepared for possible use by USAAF B-29s if required. The RAF would use its own funds to do the necessary construction work.[5] David Campbell, who puts the date of the Spaatz and Tedder visit as June/July 1946, makes the point that the "agreement was struck between the officials without public discussion or political debate of the momentous issues involved".[6] The formation of the United States' Strategic Air Command (SAC) on 21 March 1946 marked another significant milestone because SAC would soon become a focal point for US-UK nuclear cooperation throughout the Cold War. Coincident with the formation of SAC, a number of Boeing B-29 Super Fortresses and B-17 Flying Fortresses went to RAF Marham to take part in Trial RUBY alongside the Lincolns of the RAF Central Bomber Establishment. Trial RUBY was to lead to the development of the radio-controlled AZON, RAZON and TARZON bombs, the last of which was based upon the 12,000 lb RAF Tallboy bomb casing.[7] These early precision-guided munitions were subsequently used against bridge and reservoir targets during the Korean War.[8] The 18 September 1947 establishment of the US Air Force was a momentous event for American airmen, but had little obvious effect on Anglo-American airpower relations.

Spaatz's and Tedder's fears about Soviet intentions were vindicated on 1 April 1948 when the Soviets imposed a blockade on Berlin. The Berlin Airlift that followed fostered a dramatic renaissance in Anglo-American airpower relations, but the fact that the two nations flew almost all the airlift missions to Berlin was only the most obvious part of the story. Whilst the story of the Berlin Airlift is generally well known, and was covered in a recent article in Air Power Review[9], what is less well known is the deployment of SAC B-29s to the United Kingdom in a display of Anglo-American resolve.[10] On 17 and 18 July 1948, B-29s of the 29th and 307th Bomb Groups arrived at Marham, Scampton and Waddington, with another Bomb Group arriving at Lakenheath in August. Whilst the B-29s were not nuclear equipped, the Soviets saw them as nuclear capable. The Third Air Division (Provisional) was formed to command these units for what was expected to be only a 30-60 day detachment. However, it soon became apparent that the deployment would be long-lasting so on 23 August 1948 the Provisional title was dropped. The Third Air Division moved into Bushey Park air station on 8 September,[11] During the build-up, the British supplied the Americans with airfields and facilities free of charge with

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the proviso that the expenditure should not exceed the normal costs of RAF requirements and standards.[12] On 13 November 1948 the temporary status of USAF units in Britain ended with the agreement between the Air Ministry and the USAF that the long-term American use of stations in Britain should be assumed,[13] This arrangement was regularised on 4 January 1949 when Major General M W Johnson, Commander, Third Air Division, received the "financial agreement for supplies and services in the United Kingdom" from the Air Ministry.[14] During the same period (on 12 November 1948) the CAS wrote to the Head of Air Force Staff British Joint-Services' Mission, Washington asking him to investigate the possibility of obtaining some B-29s for the RAF as interim replacements for the Lincoln[15] bomber. The new USAF's Military Air Transport Service (MATS) and the RAF's Transport Command bore the brunt of the Berlin Airlift so SAC bomber deployments were relatively 'small beer', yet few air operations in history can boast of greater strategic success than the Berlin Airlift. Recognizing that British-American airpower could supply Berlin indefinitely while portraying the Western allies as feeding people the Soviets were trying to starve into submission, the Soviets ended their blockade in 1949. At about that same time, the US, UK, Canada, and nine other nations established NATO, the military alliance that would form a centrepiece of the Cold War. Indeed, the Berlin Airlift set in motion Anglo-American airpower arrangements that would endure for many years.

Although airlift planes flew the Berlin Airlift, most American and British airmen viewed the B-29, the plane that had bombed Hiroshima and Nagasaki, as the symbol of strategic airpower during the incipient phase of the Cold War. Airmen therefore sought to demonstrate their bombing prowess with the B-29. In May 1948, shortly before the Berlin Airlift began, SAC Deputy Commander Major General Clements McMullen announced the inception of a bombing competition to encourage SAC crews to develop their navigational and weapon aiming accuracies. In June 1948, three crews from each of SACs 10 B-29 groups met at Castle Air Force Base, California, to compete in the command's first bombing competition. The competition was a very simple one where each crew was required to drop three visual and

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three radar-laid bombs from 25,000 feet. The disappointing results, with Groups' Circular Error Averages (CEAs) ranging from 1,065 feet to 2,985 feet, led General Curtis E LeMay, when he took command of SAC in October 1948, to embark on his hard-driving professional reforms to ensure the accurate delivery of nuclear weapons, which was to be the Command's primary role in case of war.[16] The SAC bombing and navigation competition became an annual event, but was a US only affair until 1951 when two RAF Washingtons (B-29s) participated. At the end of 1951, SAC aircraft deployed to Sculthorpe to participate in the Bomber Command bombing competition.[17] Meanwhile, the two air forces conducted combined air exercises, such as Operation DAGGER, the first joint RAF-USAF air defence exercise, which happened in the UK in September 1948.[18]

The Korean War punctuated the second half of the Cold War's B-29 era, but a number of British-American airpower events preceded the outbreak of fighting. In October 1949, the ABC Conference in Washington reached a significant decision when the American, British and Canadian representatives agreed that the air defence of Great Britain would be an RAF responsibility, whilst the USAF would increase the number of bomber units operating from UK bases. This decision was made only days after the first Soviet atomic explosion was reported.[19] On 22 March 1950, the first B-29s to be provided to the RAF under the Mutual Defence Assistance Programme (MDAP) arrived at RAF Marham. The following month, the US Ambassador and the UK Under Secretary of state for Air agreed that, because East Anglian bases were deemed too vulnerable to Soviet air attack, four Midlands bases at Upper Heyford, Greenham Common, Brize Norton and Fairford should be developed for SAC use. Whilst the initial tranche of 70 B-29s was delivered, the second tranche was reduced from 124 to 17 due to the demands of the Korean War, which started in June 1950,[20] and the entry into service of the Canberra bomber in 1951. This latter aircraft was to provide a rare example of American licence production of a British aircraft, where as the Martin B-57, it later saw service in Vietnam. On 16 January 1951, six of SACs new B-36 strategic bombers were deployed to the United Kingdom in just 4 days.[21]

The Korean War era coincided with the commencement of strategic reconnaissance operations from the UK, initially using the RB-36D model, which sometimes staged through Mildenhall, Lakenheath and Sculthorpe.[22] Aerial reconnaissance of the USSR and Eastern Europe quickly became a perennial Cold War activity that entailed very close Anglo-American cooperation. In May 1954, B-47 reconnaissance operations commenced from Fairford[23] solidifying the pattern of Cold War reconnaissance operations from the

Lockheed SR-71 Blackbird

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UK that would continue with aircraft such as the U-2, SR-71, RC-135, and specially modified C-130s. These planes fought a protracted and sometimes deadly war in the shadows to gather information about military developments in Soviet-controlled territory.

The increasing US presence in the United Kingdom was recognised by the inception of the Special Construction Programme in February 1951 and the Visiting Forces Act of 1952. The Special Construction Programme called for an additional 26 USAF bases to be established in the United Kingdom.[24] On 20 March 1951 the 7th Air Division (SAC) formed at South Ruislip as a SAC Command in the United Kingdom.[25] More importantly, on 1 May 1951 the Third Air Division was upgraded to the Third Air Force and the subsequent 'Joint Transfer Agreement' established the relationship between the United States Air Force in Europe (USAFE) and SAC responsibilities in the United Kingdom.[26] As a result of the additional bases programme, and the USAFE-SAC split, Upper Heyford, Greenham Common and Brize Norton's

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runways were extended and B-36 deployments to those bases commenced in 1952.[27] The Visiting Forces Act of 1952 stemmed from a 1952 Churchill-Truman protocol for joint consultation on the use of British-based US forces. The Act was the British part of the NATO Status of Forces Agreement and remains in effect today.[28]

The period from 1952-1966 was characterized by nuclear co-operation and the introduction of jet aircraft. The first example was the loan, actually starting in 1951, to the Royal Air Force of four RB-45Cs for what was known as the Special Duties Flight.[29] In April 1952 and again two years later this reconnaissance unit performed radar photography over the Soviet zone of Germany and latterly over the Kiev area of the USSR itself, gathering information that would have helped bombers find targets in the event of war. June 1953 saw the first SAC B-47 Wing (306th Bomb Wing) deployed to Fairford marking the end of the B-29 wing rotations. Three months later, a UK-US agreement was signed by the Secretary of State for Air and the US Ambassador, which consolidated previous construction agreements and, perhaps more importantly, established a cost-sharing basis.[30] The end of the Korean War in 1953 had little noticeable effect on the USAF's build-up in Europe. American concerns that the aftermath of the Korean War could escalate into a nuclear conflict with both China and the USSR, stimulated by the destruction of two US reconnaissance aircraft by Chinese fighters in the summer of 1954, caused the USAF to be placed on a high alert state. The alert posture generated tensions between the USAF and their British hosts. The intensity of flying and the potential for disastrous outcomes were exemplified when a B-47 crashed 1 1/2 miles from Upper Heyford, leading to considerable protest from local communities.[31] At the same time, USAF nuclear weapons were brought to the UK for the first time and stored on both USAFE and SAC bases.

However, as the American nuclear deterrent became established, Cold War tensions shifted and there were significant changes in the USAF posture between 1955 and 1958. In Britain, the emphasis was much more on the tactical forces of USAFE and, as a result of concerns about the vulnerability of the UK to Soviet attack,[32] the 7th Air Division strength was reduced by almost half. In 1955 90-day SAC bomber rotational operations switched to much shorter ones, simulating post-strike recovery to UK bases.[33] One result was Plan 57-3, the 'Big Shuffle', which involved closing 10 bases in a consolidation of both USAFE and SAC ops onto main operating bases and returning a myriad of other units to Air Ministry control.[34] The final step in this process was the 8 January 1958 commencement of the SAC REFLEX operations at both Greenham Common and Fairford,[35] which involved small numbers of aircraft from several wings rather than complete wing deployments. B-47s involved in these deployments took part in two major air defence exercises, BUCK BOARD and GRAB HOOK, in which B-47s flying at 35-40,000 feet approached the UK on realistic threat axes to be intercepted by the Hawker Hunter F6s of Fighter Command.[36]

Whilst US nuclear weapons were being deployed in the UK and the SAC posture was shifting, things were finally changing for RAF Bomber Command with the 1955 entry into service of the first of the strategic jet bombers or 'V-Bombers', the Valiant, and with the decision in July of the previous year that a UK thermo-nuclear bomb should be produced.[37] If the two air forces were to gain maximum advantage from increasing RAF bombing capabilities, they needed closer coordination of their nuclear planning. A September 1955 meeting between the CAS, MRAF Sir William Dixon, and the Chief of Staff USAF (CSAF) General Nathan F Twining, sowed the seeds for integrated Anglo-American nuclear targeting, not least to avoid wasteful duplication of effort. Subsequently, a team of senior USAF officers visited the Air Ministry in London to discuss the provision of American nuclear weapons for the V-Force in the event of war and the co-ordination of nuclear strike plans.[38] These offers were finalised in a note from the American Secretary of Defense, Mr Charles Wilson, to his opposite number, Mr Duncan Sandys, which stated:

"I agree that it is appropriate for you to authorize the Chief of the British Air Staff to discuss with the Chief of Staff of the United States Air Force and with General Lauris Norstad (SACEUR) the

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A Douglas Thor Intermediate-Range Ballistic Missile (IRBM) of No 77 Squadron – the first of 20 Thor squadrons to be formed within the RAF Bomber Command – being raised into launch position, RAF Feltwell, February 1960

Picture AHB (RAF)

arrangement for implementing measures:
1. To furnish the Royal Air Force with United States atomic bombs in the event of general war; and
2. To co-ordinate the atomic strike plans of the United States Air Force with the Royal Air Force".[39]

This offer was then followed up by an exchange of memoranda between CSAF to RAF CAS and more detailed discussions including plans for providing US nuclear weapons for NATO.[40] As a result of these meetings, a fully integrated nuclear war plan was produced by Bomber Command and SAC staffs "taking into account Bomber Command's ability to be on target in the first wave several hours in advance of the main SAC force operating from bases in the United States".[41] In this initial plan, which was to be reviewed annually, Bomber Command was allocated 106 targets. However, Anglo-American nuclear planners faced the problem that neither SAC nor Bomber Command was willing, or indeed able, to reveal to its partners the yields of the weapons allocated to specific targets, leading to a comment in 1960 by the Air Officer Commanding in Chief Bomber

Command, Air Marshal Sir Kenneth Cross, that "in this area alone there is a barrier to co-ordination and duplication and wastage is inevitable until American legislation is altered".[42] What made this cooperative venture even more remarkable was that it proceeded despite the 1956 Suez Crisis when Britain, France, and Israel intervened in Egypt to prevent Egyptian President Nasser from nationalizing the Suez Canal. American President Eisenhower strongly condemned the venture and, following American diplomatic and financial pressure, the British, French, and Israelis aborted the operation. The Suez Crisis was clearly a rough spot in US-UK relations, but fortunately proved only a temporary problem.

One brighter aspect of weapons co-operation was 'Project E', by which US nuclear weapons would be provided for carriage on the Valiant and the Canberra. The Valiant Force of 72 aircraft at Marham, Waddington and Honington was equipped with the US Mk 5 weapon.[43] The Mk 7 weapon was also provided for Canberras operating both within Bomber Command and RAF Germany.[44] This arrangement continued until 1963 for the weapons in Bomber Command and 1969 for those in RAF Germany. However, the weapons had to be under US national custody, which limited the ability of Bomber Command to disperse its assets.[45] This problem became significant when in response to the October 1962 Cuban missile crisis, the RAF's tactical bomber force, which then comprised the three SACEUR-assigned Valiant squadrons at RAF Marham, was to be loaded with nuclear weapons. It rapidly became apparent that there were insufficient American custodial officers to maintain control of the weapons. In this case the Commanding General of USAFE allowed the weapons to be handed over to the Station Commander of RAF Marham, an act that exemplified the remarkable trust that had grown up between the two air forces by that time.[46]

Nuclear weapons cooperation extended beyond aircraft systems. In what was perhaps a unique arrangement, the US loaned Britain 60 Thor Intermediate Range Ballistic Missiles (IRBMs) from 1959-1963, as covered in an inter-governmental agreement of 22 February 1958.[47] In all, 20 IRBM sites, all ex-World War II airfields, which in some cases had for a second time been requisitioned from their owners, were established in the UK. The agreement provided that the missiles would be manned and operated by RAF units, that the nuclear warheads would again remain in American custody, and that a joint decision by both governments was required to launch the missiles. Whilst the United States would supply the missiles, specialised equipment and training for the RAF personnel, the British would provide the infrastructure at an estimated cost of £10 million.[48] The agreement was to last for only five years and in effect covered the gap while Britain fielded its own thermo-nuclear weapon. Thor had a range of some 1,500 miles with a nominal 1 megatonne warhead. To demonstrate the missiles' effectiveness, training firings of missiles from the manufacturer and, later, proving firings of missiles drawn from operational RAF sites were conducted in the United States. A non-nuclear parallel to the Thor Agreement was the US funding of RAF Regiment Rapier short-range air defence squadrons from the mid-70s to the mid-90s to defend USAF main operating bases in the United Kingdom. A year after the Thor Agreement was signed, a further inter-governmental agreement permitted one of the three ballistic missile early warning system (BMEWS) stations to be built at Fylingdales in North Yorkshire.[49] Paradoxically Fylingdales became operational on 1 September 1963 just as the Thor sites were being deactivated.[50]

Additional changes took place in the airpower realm during the late 1950s and early 1960s. The B-52 bomber had taken over as SAC's primary nuclear alert aircraft,[51] and the B-47s were now seen, rather like the Valiants, as medium bombers on 15 minute ground alert. The new KC-135 jet-powered aerial refuelling tankers replaced the propeller-driven KC-97 tankers, greatly extending bomber range. The B-52s took part in the SAC bombing competition for the first time in 1956 and after a four-year break the RAF returned in 1957 to compete with both Valiants and Vulcans.[52] The following year two Valiant teams, each comprising two aircraft and four crews, competed with the B-52s and did particularly well, one placing seventh overall and the other twentieth out of 41 teams.[53] However, in 1959 and 1961 RAF Valiants and Vulcans, and then Vulcans only, participated

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in Exercises EYE WASHER and SKY SHIELD respectively, these being United States and Canadian air defence exercises. In EYE WASHER, only one of the six RAF aircraft flying over Canada at 42,000 and 48,000 feet was intercepted.[54] Clearly, American and Canadian airmen had more work to do in the air defence realm.

If Project E and Thor marked the zenith of Anglo-American nuclear weapon co-operation, we now come to the nadir — Skybolt. In 1960 both the British and American nuclear programmes were becoming subject to the same constraints of cost, survivability of static missile sites, particularly in the United Kingdom and Europe, and of the survivability of aircraft at high level due to steadily improving Soviet surface-to-air missiles (SAM) and air defence fighters. A further concern for the British was the maintenance of an independent nuclear capability. To understand the significance of Skybolt, a brief explanation of the status of UK airborne nuclear weapons is necessary. As previously explained, the Valiants of the SACEUR-assigned tactical bomber force were equipped with American nuclear weapons. These aircraft were soon to be withdrawn from service due to airframe fatigue. The other V-bombers, the Vulcans and Victors, were armed with British-built bombs such as Blue Danube and the megaton yield Yellow Sun Mk 2.[55] Other Vulcan and Victor squadrons were equipped with the air-launched nuclear-tipped Mk 1 Blue Steel stand-off missile. An extended range Blue Steel was cancelled in January 1960,[56] as the UK did not have sufficient R&D capacity to develop that weapon and bring the Mk 1 Blue Steel into service simultaneously. Four days after the cancellation of extended-range Blue Steel,[57] the British ballistic missile, Blue Streak, was also cancelled on grounds both of cost and obsolescence. The cancellation of Blue Streak was also influenced by the potential of the American Skybolt design, an airborne-launched ballistic missile, to provide a nuclear deterrent weapon launched from outside of Soviet fighter and SAM cover from airborne alert aircraft. After talks between the Prime Minister and President Eisenhower on 28-29 March 1960 at Camp David during which the Americans indicated their willingness to provide Britain the Skybolt, and potentially the submarine-launched Polaris missile as well, the British Government confirmed the cancellation of Blue Streak.[58] Yet little more than two years later, at the Nassau Conference in December 1962, President Kennedy formally notified Prime Minister McMillan of Skybolt's cancellation.[59] The technical and financial agreement of 27 September 1960 between the UK Ministry of Aviation and the US Department of the Air Force had committed both parties to the co-operative development of the Skybolt missile but interestingly stated that "It is understood that at this time this is purely a research and development programme, no production having been authorised by our authority".[60] Having burnt their bridges with regards to national alternatives, the British enthusiasm for the Skybolt project is understandable, but the program contained high technological and cost risks. Subsequently in an aide memoire to the UK Minister of Defence, Peter Thornycroft, the US Secretary of Defense, Robert McNamara, explained why the US Government had reached a 'tentative conclusion' that the Skybolt programme should be abandoned. Whilst other options, such as a UK-only Skybolt programme or an Anglo-French collaborative programme, were considered, the project was effectively dead once the Americans had decided to withdraw funding, thus Polaris was the only alternative. The implication for the RAF was that it lost the UK strategic deterrent role on 1 July 1967 when the submarine-launched Polaris missile became operational. Furthermore, because of the very short range of the Mk 1 Blue Steel, only 100 nautical miles from high altitude,[61] it was clear

that a British-built bomb suitable for low-altitude delivery would be required for the Vulcans and Victors. Finally, in July 1965, an order was placed for 158 General Dynamics lightweight terrain following radars for those aircraft, confirming the shift from high altitude to low altitude operations which was to become the hallmark of the RAF nuclear and conventional attack forces for the next 25 years.

The early 1960s also saw changes in the planning and organization of nuclear operations, the first of these being the formation in August 1960 of the Joint Strategic Target Planning Staff (JSTPS) at HQ SAC at Offutt Air Force Base. The JSTPS's role was to produce and maintain a national strategic target list and the Single Integrated Operational Plan (SIOP). UK systems were included within this plan.[62] Furthermore, on 23 May 1963 the RAF V-Force was formally assigned to SACEUR for targeting, planning and co-ordination execution of nuclear missions , in the NATO equivalent of the SIOP. On 1 April 1965 the SAC REFLEX operation detachments in the United Kingdom were terminated.[64] As a result of this, RAF Brize Norton was returned to RAF control but RAF Upper Heyford was retained for Third Air Force operations. The end of SAC's large-scale operations in the United Kingdom was marked on 30 June 1965 with the disbandment of SAC's 7th Air Division.[65] However, just before this, on 18 April 1965, for the second successive year, the Campaign for Nuclear Disarmament (CND) Sunday protest march passed the South and West Ruislip USAF bases. These anti-nuclear protests were foretastes of what was to come.

The late 1960s witnessed continued change and turbulence. US basing in the UK became a key issue again on 13 March 1966 when France announced its decision to withdraw from the NATO Integrated Military Structure, which meant all NATO HQ and forces were to leave France by 1 April 1967. Many of the US units displaced from France relocated to UK bases. Meanwhile, RAF Bomber Command merged with Fighter Command to form a new Strike Command on 30 April 1968. That RAF reorganization did not appreciably alter Anglo-American air or space power cooperation, but did foreshadow a similar USAF reorganization that would occur 24 years later. American involvement in the Vietnam War was unpopular in Britain, yet the Anglo-American airpower relations remained cordial. Adjustments made in the late 1960s established the USAFE basing structure that remained almost unchanged for the final 25 years of the Cold War. One notable change was the June 1972 movement of Third Air Force to Mildenhall, where it remains today. However, the last move of new US forces into the UK would be entirely strategic in nature.

East-West tensions moderated slightly during the early 1970s as President Richard Nixon engaged in a policy of détente and arms control negotiations with the USSR, but the thaw proved temporary. The end of the Vietnam War in 1973 removed a point of US-UK tension. When the USAF began its Red Flag exercises, the RAF was invited to participate for the first time in August 1977, and has continued to do so ever since. That same year Soviet deployment of mobile SS-20 missiles upset the whole nuclear balance in Europe, leading to a NATO decision in 1979 to replace the Pershing Ia nuclear missiles based mostly in West Germany with the far more accurate Pershing II. In addition 464 Ground-launched Cruise Missiles (GLCMs) were to be deployed in a number of NATO nations, including the UK.[66] The 1979 Soviet invasion of Afghanistan contributed to President Carter's withdrawal from the SALT II negotiations, embargoing of wheat and technology exports and finally, in 1980, commencement of a massive force build up,[67] spelling the end of détente. The Pershing II and GLCM missile deployments were entirely in accord with the policies of both Presidents Carter and Reagan, who came to office in January 1981. As part of Reagan's policy to force the Soviets into an unwinnable arms race, the planned deployments of GLCM to Greenham Common and Molesworth met with significant protests, in particular the so-called 'peace camps' which were not limited to these two sites. RAF Regiment, RAF Police, Ministry of Defence police and civilian police forces all participated in extensive security operations around Greenham Common in particular, which received its first GLCMs in May 1983. Reagan's strategy eventually succeeded. Following the signing of various

Sea Harrier armed with AIM-9L Sidewinder missiles

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arms reduction agreements, the GLCMs were withdrawn in 1987, foreshadowing the end of the Cold War.

Anglo-American airpower cooperation continued during the Cold War's final years. The 1982 Falklands War between Argentina and Great Britain was a delicate matter for the Americans because it involved two nations that were friendly to the US. However, the US provided the UK with weapons such as the AIM-9L Sidewinder air-to-air missile and the Shrike anti-radiation missile. They also upgraded the infrastructure at Wideawake Airfield on Ascension Island and provided 12.5 million gallons of jet fuel. They also discretely provided intelligence data.[68] Finally, they deployed KC-135 tankers to Fairford and Mildenhall to cover the gap in NATO forces left by the UK deployment of Victor tankers to Ascension Island.[69] The quid-pro-quo came just four years later on 14 April 1986 when the British supported the US Operation ELDORADO CANYON bombing raid against Libya. A response to a series of Libyan-sponsored terrorist attacks, the operation involved both the USAF and USN and included the deployment of 38 KC-10 and KC 135 tankers under the guise of a NATO exercise. In addition to the tankers, the UK-based attack force comprised 15 F-111s and 3 EF-111s.[70] The highly successful mission, which lasted over 12 hours, was only mounted after joint consultation and with the express permission of Prime Minister Margaret Thatcher.[71]

The end of the Cold War did not dim Anglo-American strategic airpower cooperation, but did change its nature. Nuclear cooperation received less emphasis as attention shifted to handling regional contingencies. American and British airmen seldom flew combat missions together

during the Cold War, but they did during the 1991 First Gulf War to eject Iraq from Kuwait. Here the years of training together, particularly on Exercises like RED FLAG, paid dividends with composite RAF/USAF formations being the norm and RAF aircrew integrating easily into the USAF Air Component HQ in Riyadh. The UK also permitted US bombers and other aircraft to use British facilities in the UK and on the British owned island of Diego Garcia in the Indian Ocean. Then on 1 June 1992, in a move reminiscent of the 1968 merger of RAF Bomber and Fighter Commands, the USAF Strategic Air Command merged with Tactical Air Command to form a new Air Combat Command. Like the 1968 RAF reorganization, that change had little apparent effect on US-UK relations. Although both the USAF and RAF underwent significant force cuts and base closings during the 1990s, close cooperation continued in response to crises in Bosnia and Kosovo.

The decade between the dissolution of the USSR in 1991 and the fateful events of 2001 turned out to be an interwar era that ended with American and British airmen once again confronting a common enemy — this time in the War on Terror. The RAF has continued to fly with US airmen and provide US access to bases in the UK, Cyprus and Diego Garcia during Operations Enduring Freedom in Afghanistan and Iraqi Freedom.

A number of trends emerge from the Anglo-American airpower cooperation track record since World War II. For one thing, the two countries have enjoyed an uncommonly close partnership for a long time. Common strategic interests in opposing foes like the USSR and international terrorists go a long way towards explaining the partnership. Combined planning, personnel exchanges, and training events like bombing competitions and Red Flag war games have honed US-UK coordination to a fine edge. British willingness to host US forces on their territory decade after decade and both nations' willingness to share equipment have reflected the depth of cooperation between the two nations. Only truly close friends share their ballistic missiles, bombers, and nuclear warheads. The weapons were often of American design, but the British Canberra bomber, which served in the USAF as the B-57, was an exception.[72]

Anglo-American airpower relations have successfully weathered serious political tensions because leaders have focused on strategic goals. Basing US bombers and missiles on British soil certainly made Britain a target in the event of a nuclear war. British voters voiced their concerns so British politicians had to exercise strong leadership to follow through on agreements to host US aircraft and especially GLCMs. The bombers and tankers flew frequently, generating noise and air traffic congestion. Risky American reconnaissance flights flown from British airfields also tested the mettle of British political leaders. The GLCMs were a lightning rod for anti-nuclear protestors. Unfortunate political incidents like the 1956 Suez Crisis and the Skybolt missile cancellation in the 1960s tested relations, yet also proved the durability of the partnership. Other potentially disruptive events such as the establishment of the USAF in 1947, the Vietnam War, formation of Strike Command, and formation of Air Combat Command had minimal effect on US-UK airpower relations. These facts suggest senior US and UK political and military leaders have been focusing on the long-term strategic effects they wish to create in the world and have been able to overcome short-term problems.

The partnership has also reflected changes in the USAF view of expeditionary airpower. The Berlin Airlift included combat units deploying to forward operating locations for short periods. However, as the Cold War became entrenched, forward deployed bomber units transitioned to permanent forward garrisons. Ballistic missiles and longer-range air refuelled bombers heralded another shift in the 1960s when US bomber units redeployed from permanent bases in the UK to permanent bases in the US. Geography determined that most expeditionary aspects of US-UK airpower involved USAF units operating from British territory, but the RAF routinely flew exercises such as RED FLAG from US territory. The War on Terror has featured US air units staging from forward bases, sometimes in British territory, for short periods in a style reminiscent of the Berlin Airlift era. Whether the War on Terror devolves into a protracted Cold War-style affair with the USAF again settling into fixed forward operating bases remains to be seen.

The United States and Great Britain are true friends with continuing mutual interests so the future of their airpower relationship looks bright. The USAF-RAF example is a useful model of international cooperation that illustrates what can happen when two nations and their air forces choose to work together, and may prove instructive to those who seek to build 'coalitions of the willing' composed of airmen from other nations.

Notes

1 See Air Force Doctrine Document (AFDD) 2-1.2, Strategic Attack, 30 Sep 2003, p 29.
2 United States Joint Forces Glossary, accessed 22 Aug 04 at http://www.jfcom.mil/about/glossary.htm#S
3 AFDD 2-1.2, Strategic Attack, 30 Sep 2003, pp vii and 6.
4 Need citation for Cox article
5 Third Air Force Historical Brief, A Short History and Trilogy of the USAF in the United Kingdom, Dr Charles H Hildreth, Historical Division, Office of Information, Third Air Force, May 1967, p 2. Hereafter referred to as Third Air Force Historical Brief.
6 D Campbell, The Unsinkable Aircraft Carrier, cited in I Clark and N J Wheeler, The British Origins of Nuclear Strategy 1945-1955, Clarendon Press, Oxford, 1989, p 116.
7 Along with the larger 22,000 lb Grand Slam, Tallboy was a World War II penetration weapon for attacks on targets such as German U-boat pens and V2 missile preparation bunkers.
8 United States Air Forces in Britain — Its Aircraft, Bases and Strategy Since 1948, R Jackson, Airlife Publishing, Shrewsbury, 2000, P 9. Hereinafter referred to as Jackson.
9 Britain and the Berlin Airlift, Sebastian Cox, Air Power Review, Spring 2004
10 Third Air Force Historical Brief, p 2.
11 Third Air Force Historical Brief, p 10.
12 Jackson, p 13.
13 Third Air Force Historical Brief, p 10.
14 Third Air Force Historical Brief, p 11.
15 RAF Nuclear Deterrent Forces, H Wynne, HMSO, London, 1994, p 586. Hereafter referred to as Wynne.
16 Strategic Air Command Historical Study No 213, Proud Shield, SAC Bombing and Navigation Competition 1948-1986, Drs A J Birtle and R D Brunkow, Office of the Historian, Headquarters Strategic Air Command, Alford Air Force Base, Nebraska, 1987, p 2. Hereafter referred to as SAC Historical Study.
17 Jackson, p 70.
18 Third Air Force Historical Brief, p 10.
19 Third Air Force Historical Brief, p 11.
20 Jackson p 21.
21 Jackson, p 26.
22 Jackson, p 44.
23 Jackson, p 45.
24 Third Air Force Historical Brief, p 13.
25 Third Air Force Historical Brief, p 13.
26 Third Air Force Historical Brief, p 13.
27 Jackson, p 32.
28 See: http://www.parliament.the-stationery-office.co.uk/pa/cm199900/cmselect/cmdfence/100/9120810.htm
29 Russian photo shoot, Sqn Ldr John Crampton, Air Pictorial, August 1997.
30 Third Air Force Historical Brief, p 14.
31 Jackson, p 51.
32 Wynne p 298.
33 Third Air Force Historical Brief, p 5.
34 Third Air Force Historical Brief, pp 16-18.
35 Third Air Force Historical Brief, p 17.
36 Jackson, p 58.
37 Wynne, p 598.
38 Wynne, pp 254-255.
39 Cited in Wynne, p 257.
40 Wynne, pp 605-607.
41 COS Memorandum, 5 June 1958, cited Wynne, p 275.
42 Wynne, p 279.
43 Wynne, p 263.
44 Jackson, p 272.
45 Wynne, p 262. The US had successfully tested an H-bomb in 1952.
46 Jackson, p 87.
47 Third Air Force Historical Brief, p 17.
48 Wynne, p 291.
49 Third Air Force Historical Brief, p 19. The other two BMEWS radars were built at Clear, AK and Thule Greenland.
50 Third Air Force Historical Brief, p 20.
51 Jackson, p 68.
52 SAC Historical Study, p 6.
53 Wynne, p 308.
54 Wynne, p 310.
55 Wynne, p 571.
56 Wynne, p 613.
57 Wynne, p 613.
58 Wynne, p 398.
59 Wynne, p 403.
60 Cited in Wynne, p 412.
61 Wynne, p 423.
62 Jackson, p 82.
63 Wynne, p 622.
64 Third Air Force Historical Brief, p 21.
65 Third Air Force Historical Brief, p 22.
66 Jackson, p117.
67 America, Russia and the Cold War, 1945-1996, 8th Edn, Walter LaFeber, Mc Graw-Hill , 1997, 298-299.
68 Anglo-American Relations & the Falklands Conflict, Christopher Bluth in International Perspectives on the Falklands Conflict, A Danchev, St Martin's Press, NY, pp 217/8.
69 Falklands — the Air War, Burden, Draper, Rough, Smith & Wilson, British Aviation Research Gp, 1986.
70 Jackson, p 123.
71 The Collins History of the World in the 20th Century, JAS Grenville, London, 1998, p 866.
72 The Harrier VSTOL aircraft was another example, but that plane is not considered a 'strategic' asset for the purposes of this article.